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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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|--|--|--|-----------------------|
| Applicant's or agent's file reference 2004DE411 | | FOR FURTHER ACTION | See Form PCT/IPEA/416 |
| International application No. PCT/EP2005/003004 | International filing date (day/month/year) 22.03.2005 | Priority date (day/month/year) 29.03.2004 | |
| International Patent Classification (IPC) or national classification and IPC INV. C11D3/00 C11D1/62 C11D3/43 C11D3/30 | | | |
| Applicant CLARIANT PRODUKTE (DEUTSCHLAND) gmbh | | | |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> | | | |
| <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p> | | | |
| Date of submission of the demand 24.01.2006 | | Date of completion of this report 13.06.2006 | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | | Authorized officer Hillebrecht, D Telephone No. +49 89 2399-8168 | |



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2005/003004

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-10 as originally filed

Claims, Numbers

1 received on 24.01.2006 with letter of 23.01.2006

2-10 received on 05.04.2006 with letter of 20.03.2006

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2005/003004

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|------|
| Novelty (N) | Yes: Claims | 1-10 |
| | No: Claims | |
| Inventive step (IS) | Yes: Claims | 1-10 |
| | No: Claims | |
| Industrial applicability (IA) | Yes: Claims | 1-10 |
| | No: Claims | |

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/EP2005/003004

The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

- D1: EP-A-0 240 727 (HENKEL KGAA) 14 October 1987
- D2: WO 01/85892 A (PROCTER & GAMBLE) 15 November 2001
- D3: JP 10 251972 A (LION CORP) 22 September 1998
- D4: WO 98/08924 A (PROCTER & GAMBLE) 5 March 1998
- D5: WO 99/60082 A (UNILEVER PLC) 25 November 1999

V.

1. Claim 1 is novel and inventive (Article 33(1) to (3) PCT).

Claim 1 defines a concentrated ester quat composition comprising

- a) at least 50 wt% of an ester quat according to formula (I),
- b) an organic solvent,
- c) water, and
- d) triethanolamine, monoethanolamine, ethylenediamine, dialkylamines, dialkyl methyl amines, ethoxylated alkyl amines or methyl propanol alkyl amine.

D1, claim 5, shows a respective composition comprising 30 to 70 wt% of an ester quat, the range of from 50 to 70 wt% is overlapping with present claim 1, glycerol and further organic solvents, water and an acid such that the pH is below 6. There is no indication in D1 to add any compound selected from item d) of present claim 1.

D2, example 3 on page 68 shows a composition comprising 68.47 wt% of an ester quat, TMPD as a solvent, and 5.67 wt% of water. Again, none of the required amines can be found in combination with items a), b), and c) of present claim 1.

D3, paragraphs [0017] to [0022] discloses highly concentrated esterquat

compositions comprising more than 73 wt% of the esterquat, water, ethanol, and non-specified amines/amine salts. Furthermore, alkali salts are present. The present amines are not disclosed.

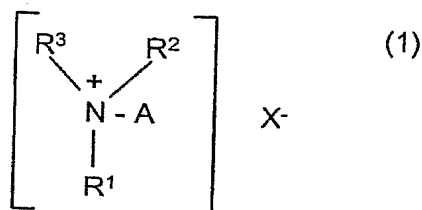
2. The problem to be solved resides in providing an highly concentrated ester quat composition being stable against hydrolysis of the ester bond and which can easily be diluted. The problem has apparently solved by adding one of the specified amines. D3, shows that for basic salts like Na citrate, the hydrolytic stability is reduced compared to neutral salts. However, there is no teaching in the prior art that amines may be used as stabilizers preventing the hydrolysis of the ester bond of ester quats. In D5 some amines are used to stabilize esterquats in view of the dequaternization of the ester quats. There is no indication that hydrolysis of the ester bonds may also be affected.

VIII.

1. Regarding example 8 of the specification, it is not readily apparent which compositions are used therein. Thus, it is not possible to identify which features of the presently claimed composition are responsible for the increase in viscosity. Applicants did not comment on this observation.
2. Although it is obvious that example 4 on page 7 of the specification is erroneous, there is apparently no way to remedy this error.

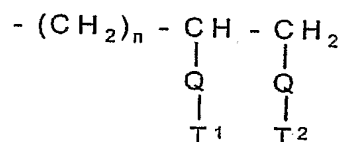
New claim 1:

1. An ester quat composition essentially consisting of:
 - a) at least 50% by weight of an ester quat compound of the formula 1



wherein:

A is a group of the formulas $-(\text{CH}_2)_n\text{-Q-T}^1$ or



Q is $-\text{O}-\text{C}(\text{O})-$ or $-\text{C}(\text{O})-\text{O}-$;

R^1 is $(\text{CH}_2)_n\text{-Q-T}^2$ or T^3 or R^3 ;

R^2 is $(\text{CH}_2)_m\text{-Q-T}^4$ or T^5 or R^3 ;

R^3 is H, $\text{C}_1\text{-C}_6\text{-alkyl}$, $\text{C}_2\text{-C}_6\text{-alkenyl}$ or $\text{C}_1\text{-C}_6\text{-hydroxyalkyl}$;

T^1 , T^2 , T^3 , T^4 , T^5 are independently $\text{C}_8\text{-C}_{22}\text{-alkyl}$ or $\text{C}_8\text{-C}_{22}\text{-alkenyl}$;

n and m are integers from 1 to 6; and

X is an anion,

- b) an organic solvent
- c) water and
- d) triethanolamine, monoethanolamine, ethylenediamine, dialkylamines, dialkyl methyl amines, ethoxylated alkyl amines or methyl propanol alkyl amine.

New claims 2 - 10

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2. A concentrated ester quat composition as claimed in claim 1, wherein in the formula 1
- Q is $-O-C(O)-$;
- R1 is $(CH_2)_n-Q-T2$ or $T3$;
- R2 is $(CH_2)_m-Q-T4$ or $T5$ or $R3$;
- R3 is C_1-C_2 -alkyl or C_1-C_6 -hydroxyalkyl;
- T1, T2, T3, T4, T5 are independently C_8-C_{22} -alkyl or C_8-C_{22} -alkenyl;
- n and m are 1 or 2.
3. A concentrated ester quat composition as claimed in any of the previous claims, wherein two or more different types of the ester quat compounds of formula 1 as defined in claim 1 are present.
4. A concentrated ester quat composition as claimed in any of the previous claims, wherein the ester quat compound is a compound of formula 1 wherein A R^1 and R^2 are a group of the formula $-CH_2CH_2OCO-T^1$, R^2 in addition may be a group R^3 , R^2 and R^3 being independently selected, R^3 and X being as defined under formula 1.
5. A concentrated ester quat composition as claimed in any of the previous claims, wherein the ester quat compound is present in an amount of from 50 to 90%, preferably from 65 to 75% by weight of the whole composition.
6. A concentrated ester quat composition as claimed in any of the previous claims, wherein the organic solvent is selected from the group of short alcohols, preferably methanol, ethanol, propanol, isopropanol or a mixture thereof.
7. A concentrated ester quat composition as claimed in any of the previous claims, wherein the organic solvent, or a mixture of organic solvents, is present in an amount of from 5 to 30%, preferably from 15 to 25% by weight of the whole composition.

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8. A concentrated ester quat composition as claimed in any of the previous claims, wherein the water is present in an amount of from 5 to 20%, preferably from 7 to 15% by weight of the whole composition.

~~9. A concentrated ester quat composition as claimed in any one of the previous claims, wherein the pH-modifier is an amine.~~

~~10. A concentrated ester quat composition as claimed in any of the previous claims, wherein the pH modifier is selected from the group of triethanolamine, monoethanolamine, ethylenediamine, dialkylamines, dialkyl methyl amines, ethoxylated alkyl amines and methyl propanol alkyl amine.~~

~~11.~~ 11. A concentrated ester quat composition as claimed in any of the previous claims, wherein the pH modifier is present in an amount of from 0.1 to 3% by weight of the whole composition.

~~10, 12.~~ 12. A concentrated ester quat composition as claimed in any of the previous claims, which additionally contains any other additives or auxiliaries.